

## CLAIMS:

1. A device for generating X-rays (18) comprising:
  - an electron source (3) for emitting electrons accommodated in a vacuum space (2);
  - a liquid metal circuit including a liquid metal for emitting X-rays as a result of the incidence of electrons and a pumping means (11) for causing a flow of the liquid metal through a constriction (7) where the electrons emitted by the electron source (3) impinge upon the liquid metal; and
  - a radiation window (12) bounding said constriction (7), which is transparent to electrons and X-rays and separates the constriction (7) from the vacuum space (2);
- 10 characterized in that said constriction (7) is bounded by a compensation window (13) opposite of said radiation window (12), which separates the constriction (7) from a pressure chamber (14) containing liquid metal provided by said liquid metal circuit via a connection (15), and which, during operation, has a profile (p') as a result of a deformation caused by a pressure in the pressure chamber (14) different from the pressure in the constriction (7) which substantially matches a profile (p) which the radiation window (12) has, during operation, as a result of a deformation of the radiation window (12) caused by a pressure of the liquid metal in the constriction (7).
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2. A device as claimed in Claim 1, characterized in that said pressure chamber (14) is connected to a high pressure area of said liquid metal circuit upstream of said
- 20 constriction (7).
3. A device as claimed in Claim 1, characterized in that said pressure chamber (14) ranges substantially over the complete area of said compensation window (13).
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4. A device as claimed in Claim 1, characterized in that said compensation window (13) is substantially of the same size as said radiation window (14).

5. A device as claimed in Claim 1, characterized in that said compensation window (13) is substantially made of the same material as said radiation window (12).

6. A device as claimed in Claim 1, characterized in that said compensation  
5 window (13) is thicker than said radiation window (12).